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ABSTRACT

Because financial, technical, and geographic constraints often limit the ability of health care providers to reach all children in need of care, especially in developing nations, some governments, donor agencies, and other development organizations are exploring the use of interagency collaboration to deliver health care services in schools. This paper examines the need for health and education agencies to work together to ensure that school-aged children have adequate health care. The paper identifies factors critical to the successful implementation of integrated and interagency programs, analyzes the organizational and institutional barriers to such collaborations, proposes ways to overcome such barriers, and provides a brief inventory of school-health programs undertaken in developing countries. The first part of the paper discusses the rising concern for school-aged children in developing countries regarding their health and nutrition, and the link between children's health and educational achievement. This part makes a case for interagency collaboration for school-based health programs, and examines elements of successful programs, barriers to such collaboration, and ways governments and schools can overcome the constraints. A table summarizes key strategies discussed in the section, objectives for the strategies, possible outcomes, and some implementation issues. The second part of the paper describes programs and activities

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targeting school-aged children, with a school-based health component, and currently in operation and involving interagency collaboration in developing nations. The following information is provided for each program: (1) project sponsor; (2) other participating organizations); (3) dates of operation; (4) interventions available; and (5) program strengths. (Contains a 39-item bibliography.) (KB)

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ABEL 2

Advancing Basic Education and Literacy
Phase 2

Working Paper

Bringing Together Health and Education for School-Age Children

by
Kera Carpenter
Harvard Institute for International Development

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Bringing Together Health and Education for School-Age Children

Kera R. Carpenter
for
The Harvard Institute for International Development

Project ABEL 2
USAID/Academy for Educational Development

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Bringing Together Health and Education For School-age Children

Introduction

That all children have the right to education is widely accepted. But children also have the right to good health, and this, according to Novella, et al., means that policymakers should promote optimum use of available preventive measures, such as immunization, prevention of injuries, early identification of disease and disability, and prompt provision of treatment.[1] UNICEF also holds this view. It believes that the minimum school health package should include information and skills, a healthy environment, medical and related services, and nutrition and appropriate policies.[2] In practice, however, children's access to health care is far from universal in many countries, even at the most basic, preventive level. Financial, technical, and geographic constraints limit the ability of health sector professionals to reach all the children in need of care, which suggests that alternative strategies are needed. One approach being explored by governments, donor agencies, and other development organizations is the delivery of health services in schools through interagency collaboration.

Though there has recently been considerable discussion of the need for intersectoral collaboration, little attention has been paid to the political and organizational considerations in adopting such a model. Many evaluative studies have focused on either the nutritional or the educational outcomes. This information is important, but more detailed knowledge about the organizational and incentive structures within local institutions could help answer some of the following questions:

- Is it possible for the health and education sectors to work together to achieve common and related goals?
- What are the institutional elements of such collaborative initiatives?
- What makes a program successful or unsuccessful?
- What are the structural barriers preventing effective collaboration?
- What can governments do to ensure that the provision of health services to school-age children is effective and sustainable?

This paper considers these structures and questions and identifies factors critical to successful implementation of integrated and interagency programs. It also analyzes the organizational and institutional barriers to collaboration and proposes ways to overcome them. Lastly, it provides a brief inventory of school–health programs undertaken in developing countries.

School-based programs do exist, but in-depth studies of the institutional aspects of health care provision through schools are scarce, especially in developing countries.[3] As Moulton observed, "Most researchers and practitioners agree on the need for the education sector to cooperate with the health sector in delivering education and health services, but the best strategies for

[1] Novella, et al., 1992.
[2] Dick, Bruce, "Outlining the Minimum School Health Package," in UNICEF 1995, pp. 62-64.
[3] Personal communication.

cooperation are only beginning to be tested."[4] As governments begin to ask *what* can be done, it is also important that they ask *how* they can do it.

The rising concern for school-age children

During the 1970s and early 1980s, the school-based approach was not uncommon. However, as estimates of the number of children dying from hunger, malnutrition, and disease during early childhood climbed alarmingly higher, donor and development agencies turned their attention more toward child survival. Child survival initiatives focused on keeping children alive and helping them through the early years of life, i.e., up to age five.[5] These programs have been largely effective—more children are getting through the critical period from birth to age five and enrolling in primary schools. Today the survival rate is around 90 percent for young children.[6]

Despite these impressive gains for young children, the overall rate of child mortality and morbidity has remained the same, leading governments and development organizations alike to ask why such high numbers of children are still becoming ill and dying, and why so few children are achieving in school. Health programs had addressed the needs of infants and young children, but it appeared that once children were in school their health needs were virtually ignored. Furthermore, the numbers of children in school suffering from short-term hunger and nutrition-related illnesses were, in many cases, as high as had existed among pre-schoolchildren before the advent of child survival programs.

Health, nutrition, and learning

School-age children in developing countries suffer from a wide range of health-related problems, including intestinal parasites, short-term hunger, iron deficiency anemia, protein-energy malnutrition, vitamin A deficiency, and visual impairment. The effects of these problems on children's ability to learn in school are well-documented. Numerous studies have, over the years, shown the association between health and cognitive and educational development.[7] Although the causal relationship between health and educational achievement is inconclusive, most studies agree that children's health and nutritional status correlate with school performance. Levinger, for example, reported findings that children deficient in nutrients have retarded growth, retarded mental and motor development, higher levels of fearfulness and inattentiveness, decreased social responsiveness, and diminished ability to engage in conceptual learning.[8] They also tend to enter school at a later age.

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[4] Moulton, 1996.
[5] Colletta, et al., 1996; Development Fund for Africa, 1989; UNICEF, 1989.
[6] Colletta, et al., 1996.
[7] Pollit, 1984; UNESCO, 1989; Berhman and Lavy, 1994; Glewwe and Jacoby, 1993; UNICEF, 1986; Sigman, et al., 1989; Van Heerden, 1984; The World Bank, 1994.
[8] Levinger, 1989; 1994.

Other studies—while recognizing the influence of health and nutrition—emphasize the effects of environmental factors such as family and community life on educational achievement.[9] These studies posit that improving children's health has little or no effect on educational achievement if family life is unstable, the community places little value on schooling, or the school is an unhealthy and unattractive place. Additional research argues that the ill effects of early malnutrition can be overcome as children grow older, provided they receive adequate social and emotional stimulation and a fairly adequate diet.[10] If early debilitation can be overcome, then ensuring a positive school experience by targeting schoolchildren appears all the more logical.

Vulnerable children

Frequently, the children most vulnerable to illness and malnutrition are from society's poorest and most disadvantaged groups. For poor families, the opportunity costs of sending their children to school may be too great. Getting health care from the nearest clinic may mean a financial burden or a long trip on foot if there is no clinic nearby, which in turn might mean a day's wages lost for either the child or his parents. Already disadvantaged, these children are further hindered in their development due to the effects of hunger, sickness, and the lack of adequate medical care. In a self-perpetuating cycle, children of poor families are often prevented from getting an education because they are poor, and they remain poor and unhealthy because they are not well-educated. Eventually, they grow up to have children of their own, who also fail to achieve in school. Many drop out after only a few years, and often what little they do learn in school is soon neutralized by absenteeism.

Girls are particularly vulnerable to nutritional, health, and educational risks. Overall they receive less education than boys for a number of reasons. If forced to decide, families usually send their sons instead of their daughters to school. Girls also generally miss more days of school to care for younger siblings or work during harvest season. In cultures where boys and men are fed before girls and women, girls may receive less nutritious leftovers and smaller quantities, often in situations where the physical work demands are greater. Cultural norms and socioeconomic constraints may mean they have less access to both education and health care. As adolescent girls' bodies change, good nutrition and health education become even more important. For adolescent mothers inadequate nutrition and health care can have serious consequences for the girls themselves and for their unborn children.

The benefits of good health

Though health and education officials have often ignored or been unaware of the link between children's health and educational achievement, there is evidence that children benefit in many ways from improved health. For example, Del Rosso and Marek concluded that:

[9] Carson and Greeley, 1988; Negussie, 1990; Sigman, et al., 1989.
[10] Van Heerden, 1984

- healthy children stay in school longer and are able to learn more;
- healthy girls stay in school longer and tend to delay childbearing, which in the end, means a lower overall birth rate, better outcomes for newborns and for their mothers, and healthier children;[11]
- healthy children miss fewer days of school, repeat less, and finish more years of schooling; sometimes the reason for low school achievement is simply poor attendance, i.e., children are not in school and therefore cannot learn; and
- school feeding programs may encourage parents to send children to school, reducing absenteeism and attrition, particularly among girls.[12]

Health/nutrition interventions that are believed to affect learning include:

- interventions to rid children of parasitic infections that can lead to malnutrition and weakened immune systems;
- family life education programs that enable children to make positive choices for themselves and eventually for their children;
- family planning;
- immunization against diseases such as cholera and malaria;
- protein-energy malnutrition alleviation;
- micronutrient deficiency alleviation;
- school feeding programs that alleviate hunger, improve nutrition, and increase school attendance;
- school health education programs that help children see cause–effect relationships in health issues and view health in the context of every day life;
- school health services that enable children to receive attention for immediate needs; and
- improvement of the school environment in order to make school a safe, pleasant place to gather and learn.[13]

These interventions, which are simple and focused on prevention, can all be delivered through school-based programs.[14] However, they can only be effectively implemented with the collaboration of health and education personnel.

The case for interagency collaboration for school-based health

Traditionally, provision of health services has been the responsibility of the health ministry, while education has been the domain of the education ministry. The myriad of problems faced by children, particularly in developing countries, suggests a need for a more holistic approach that addresses the physical, psychological, social, and personal domains of health.[15] A child suffering from hunger cannot concentrate on classroom lessons, and another stricken with malaria is

[11] Levine, 1980; Subbarao and Raney, 1993.
[12] Del Rosso and Marek, 1996.
[13] UNESCO, 1989.
[14] UNESCO, 1989.
[15] Perry, undated.

unable to attend school for a long period of time. Inadequately nourished children suffer many ills that hinder learning, including the loss of eyesight. "A child must be physically and emotionally healthy in order to learn, and a child and [its] family must be educated in order to stay healthy."[16]

UNESCO reported in 1989 that:

> School-based nutrition and health interventions to improve primary school performance could have significant educational results. It should also be recognized that there will be additional benefits to improving the nutrition and health of schoolchildren. Better nutritional health status of schoolchildren will improve the quality of life and well-being of millions of human beings in their own right. Schoolchildren who are healthy, have adequate energy and feel well, are likely to be happier, better adjusted, stronger, more productive and, in general, better human beings while they are in school.... Improving the nutrition and health of primary schoolchildren will have immediate benefits for families and their communities.[17]

In 1995, among the key program principles cited by the UNICEF Fourth Technical Group Meeting was the need for intersectoral collaboration. Dick asserts that:

> In few programming areas is the need for "intersectoral collaboration" more important than in SBIs [School-Based Initiatives].... Collaboration will need to be nurtured at least between the ministry of health and the ministry of education, and certain policies will need to be consistent in both sectors. The ministry responsible for implementation (MOE) is likely to be different from the ministry responsible for technical support and health policy formulation (MOH).[18]

Interagency collaboration aims to address children's problems in a comprehensive, holistic manner in order to enhance their learning. This is accomplished through the provision of health education as well as health and nutrition treatments, and through the creation of a safe, healthy environment where children can learn and grow. In an integrated services approach, services are provided to children through collaboration among schools and health care providers. Schools become central participants in planning and governing the collaborative effort, and services are provided for, or coordinated by personnel located at or near the school.[19] Because school personnel interact with children on a daily basis, they are in the best position to identify and monitor children with health needs.

Utilizing schools as treatment sites means that health professionals and teachers can work together in addressing children's problems. Schools become centers of support for families and their children; they also become active participants in monitoring children's physical and mental health and in counseling families and their children.

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[16] Novella, et al., 1992.
[17] UNESCO, 1989.
[18] Dick, Bruce, UNICEF Fourth Technical Support Group Meeting, 1995.
[19] *The Future of Children*, 1992.

There are several advantages to using schools for health service delivery:

- the interventions delivered through schools are usually low cost but effective;
- students are easily accessible and, since most children attend school at some point, coverage is wider;
- teachers can monitor the health/nutritional status of their students and make appropriate referrals when needed with little extra effort or time;
- the methods often used are more participatory and have the potential to reach family members and the wider community, e.g., school health clubs; and
- the school may be less intimidating to parents, since it is an important part of the community (parents may be more likely to attend to the health/nutritional needs of their children if they deal with people they know and trust and if the services are free).

According to Melaville, et al., collaborative school health/nutrition systems include three basic actors—schools, health services, and social services—with the level of comprehensiveness varying from school to school.[20] The presence of an integrated service model makes possible:

- easy access to a wide array of prevention, treatment, and support services, no matter who provides the services;
- techniques to ensure that appropriate services are received and are adjusted to meet the changing needs of children;
- a focus on the whole child; and
- an emphasis on improved outcomes for children and families, based upon realistic but high expectations for achievement.

School-based clinics

In the United States, more and more schools are establishing clinics in or near schools. These clinics provide a variety of services ranging from first aid to mental health counseling to sex education. School-based clinics allow schools to create a hub of support for schoolchildren as well as their families.[21]

The school-based clinic model, however, places the responsibility on the health sector. The school's participation does not go beyond providing space for health services and making a financial contribution. In truly integrated systems, schools make health part of everyday school life, complementing the efforts of school health workers. School administrators and teachers emphasize the importance of a healthy, safe environment by undertaking school improvement projects and formulating school environmental standards. Health and nutrition issues are integrated into the curricula, e.g., in biology, sex education, home economics, and agriculture courses. Primary level reading and math lessons integrate basic health and nutrition topics. Teachers and health workers convene regularly to discuss topics needing special attention. Extracurricular activities promote healthy behavior among students and help them become more

[20] Melaville, et al., 1993.

[21] *Future of Children,* 1992; US GAO, 1994; Brindis and Chang, 1994.

aware of health issues. With the commitment of school staff, health and nutrition is much more than a small add-on component to the school day.

Elements of successful programs

A recent study on partnerships in education describes characteristics of successful experiences in the United States.[22] The nature of collaboration and the services provided to children are generally much more comprehensive than they are in developing countries, but many of the factors related to the success of collaborative initiatives may be relevant. Among the factors identified as leading to success are:

- joint planning and policymaking between sectors and between levels;
- flexible budgets and funding streams that allow for activities that cross sectoral boundaries;
- information systems that allow for sharing of data;
- coordination between agencies on activities ranging from logistics to strategic planning;
- properly trained staff with the technical knowledge to deliver a variety of health services;
- flexibility in job descriptions for teachers and health workers;
- accountability and incentive systems that emphasize positive results;
- inclusion of parents and communities in the planning and implementation phases;
- a family-oriented, child-centered approach that addresses both in-school and out-of-school influences on a children's physical and emotional development;
- comprehensive coverage through the integration of different interventions;
- decentralized governance that allows local policymaking and priority setting; and
- preventive rather than curative orientation.

These factors are essentially identical to those cited by agencies and program personnel working on developing country activities. However, Del Rosso and Marek report that the lack of collaboration between the health and education sectors has been a major stumbling block in implementing school health programs. For example, in Mozambique and Burkina Faso education projects stalled because the two sectors were not cooperating.[23]

The Oxford-based Partnership for Child Development has developed one of the most effective models for school-based health interventions.[24] Its effectiveness is in part due to:

- its focus on the school-age child;
- the child-centered approach that looks at the whole child in the context of his environment;
- the implementing role of the education sector;
- the development of partnerships among local, national, and international communities; and
- the emphasis on research and control.

[22] Burchfield and Carpenter, 1996.
[23] Del Rosso and Marek, 1996.
[24] Del Rosso and Marek, 1996; Watson, 1996; USAID/Bureau for Africa, 1996; Adjei, 1996.

Barriers to collaboration for school-based programs

The World Bank advocates school-based treatment of child health problems because it views it as a cost effective approach that allows wide access to children.[25] Targeting schoolchildren is considered especially cost effective because in most communities children are at most risk and the school setting makes them readily accessible for intervention.[26] Schools are thus a logical point of entry, and support for the school-based approach is growing. However, not all programs succeed due to a number of barriers that prevent their effective implementation, such as:

- *lack of political support at the local, regional, and national levels:* Without commitment from all levels of government, priorities are unfocused and funding can be inconsistent or insufficient. Conflicting priorities and lack of coordination between levels leads to program duplication or stagnation.
- *lack of teacher training and support:* Teachers are frequently the primary providers of school health services and education, but they often lack technical training and incentives such as flexible scheduling and additional compensation that could ensure their effective and continued participation. Most developing country teachers are overburdened and may not be willing to accept the additional requirements of a health service program, regardless of their concern for their students' health.
- *focus on short-term interventions rather than long-term sustainability:* Health programs are often initiated to address specific health or nutrition problems. Funding for one-shot treatments cannot eradicate the myriad health/nutrition and socioeconomic problems afflicting children. Consequently, interventions may effectively control one health problem but usually only for a short time. Often one health condition is associated with another health problem or an environmental condition such as family, community, or school. For example, a child's anemia might be exacerbated by parasitic worms; treating the child for anemia without treating for worms will alleviate the condition for only a short time. All the child's symptoms should be addressed in tandem. This holistic, integrated approach will more likely lead to sustained good health.
- *policymakers' lack of understanding of the environment in which schoolchildren live:* Policymakers, especially at the national level, are often removed from the environments of schoolchildren and their families. They may attempt to transplant inappropriate Western models, they may lack information about local conditions, they may have insufficient understanding of male–female roles and responsibilities and child labor requirements, and they may not have sufficient or accurate epidemiological data. All these factors may lead policymakers to make program decisions that do not address the real concerns of children in rural villages. District and—in particular—local policymakers are much closer physically, socially, and culturally to the schools and communities and are better able to design policies targeted to actual conditions.
- *turf issues:* Conflicts over roles and responsibilities may prevent successful collaboration. Health professionals may be unwilling to share the responsibility of providing health services

[25] Del Rosso and Marek, 1996.
[26] Warren, et al., undated.

and health education with the education sector. Education professionals may not be willing to involve the health sector in planning curricula or other school-based activities. The health and education sectors are accustomed to competing for scarce resources and, therefore, cooperation between the two may be impeded by a lack of trust. In addition, according to Moulton, "professionals in these two areas have different perspectives on development problems and different approaches to solving them."[27]

- *sectoral priorities:* Some education specialists feel that education activities should be of highest priority, while some health specialists consider health issues more important. Conflicting priorities, particularly at the state level, may mean that funding for school-based health services will be insufficient or inconsistent. Improving child health currently falls outside the policy framework of both education and health sectors, and without institutionalization of school health programs at the national level, neither group is likely to take the initiative.
- *monitoring and evaluation:* The lack of monitoring and evaluation mechanisms makes tracking the progress of implementation and the effect of interventions difficult. Without up-to-date progress reports and program analysis, necessary adjustments to the program may not occur or the program could suffer a loss of momentum.
- *equity concerns:* School-based programs raise concerns regarding health care for school-age children who are either not enrolled or are absent the day treatment is given. This is a particular concern for girls (who are more frequently kept out of school than boys), children who must work instead of attending class, and children too ill or weak to go to school.[28]
- *finance concerns:* Most governments spend more on education than on health, and funding mechanisms for health and education activities are usually separate. Integrating new activities into separate budgets is likely to create implementation problems.

Barriers to establishing school-health linkages exist at all levels—from local to national.[29] The constraints listed above are among the most commonly cited. However, depending on the country, region, school, and the participating organizations, other constraints may hinder effective collaboration and program effectiveness.

- *At the local level:* World Health Organization projects have encountered a number of barriers to establishing effective collaborative initiatives in school health. A lack of understanding of the relationship between health and education, for example, means that families and communities may not consider school health a critical issue around which to mobilize. Weak or non-existent managerial direction at the local level also constrains some programs, as are insufficient financial support and lack of incentives for school personnel to get involved in health projects.

[27] Moulton, 1996.
[28] Husein, Talaat, El-Sayed, El-Badawi, and Evans, undated.
[29] Jones, in USAID/Bureau for Africa, 1996.

- *At the school level:* lack of leadership and authority is a common constraint. Although schools usually implement health programs, school heads may actually have little authority to adapt programs to local conditions or initiate new projects. Allowing schools to set their own health agendas would make health education programs more relevant. In addition to granting schools greater autonomy and policymaking power, school policies to support a healthier school environment, e.g., sanitation standards and regulations, could facilitate program success. Another barrier to programs at the school level may be teaching methodologies that do not encourage students to express opinions, ask questions, or think critically. Students may want to ask questions on sensitive issues—such as sexuality—but teachers may be uncomfortable entertaining or answering such questions. They may also be uncertain of their knowledge of health issues. Although the methodologies promoted through school-based initiatives are often participatory, there is no guarantee that teachers will carry use them in classroom practice.

- *At the district and regional level:* one level of the education system may delegate responsibility for school health to another level without being aware of the amount of resources required. School district authorities and health authorities may not share a common jurisdiction, which could lead to difficulties in planning coordinated approaches between the national, district, and local health and education authorities for school-based activities.

- *At the national level:* resources such as skilled personnel, communication and teaching materials and textbooks, and money are limited. Moreover, because government officials are removed from the day-to-day activities of schools, planners at the top may be unaware of the difficulties of integrating health materials into existing curricula. Many other factors can constrain initiatives and collaboration between health and education at the national level, such as lack of coordination between concerned departments; low priority being assigned to health activities; difficulty in coping with rapidly growing school populations; scarce funds to train and compensate personnel; lack of well-defined strategies to support and promote school health programs; and lack of monitoring, followup, and evaluation of current programs.

Common to all levels of the education system are inadequate understanding and acceptance, collaboration, vision, and strategic planning.[30] Moreover, barriers exist between levels, which further hinders full coordination and integration. Health and education priorities of school heads may differ from those of district officials, and what national leaders consider to be important may be a low priority for regional policymakers. Conflicting priorities could lead to program stagnation, confusion, under-funding, and a lack of commitment.

Overcoming the constraints

How can governments and schools put in place programs that work? How can barriers to improving the health and education of schoolchildren be overcome? Various donors have

[30] Jones, in USAID/Bureau for Africa, 1996.

proposed strategies that address the most commonly cited barriers—absence of understanding and acceptance, inadequate collaboration, limited vision, and weak strategic planning. Jones, for example, recommends six strategies to improve school-based programs:

- identify responsible organizational staff/unit, and clarify the roles and responsibilities of agencies and individuals;
- develop an evolving strategic plan to assure that scarce resources have maximum effect;
- implement activities to achieve the plan's objectives; target activities on priority issues and groups;
- monitor the achievement of the plan's objectives;
- establish a working intra-organizational group; and
- establish a working inter-organizational group.[31]

The distinguishing element of UNICEF's strategy is its focus on community linkages and the need to include parents and families in the learning process.[32] UNICEF believes that without support from families and others, projects of any kind will be unsustainable. Other lessons UNICEF has learned regarding the collaborative process and the ways to overcome barriers can be summarized as follows:

- bringing together different sectors takes time and effort;
- it is necessary to link what goes on in schools with what goes on outside (NGOs, PTAs, etc.);
- it is necessary to focus on primary and secondary schools and to link activities from one level to the next;
- it is essential to develop linkages with the community as well as effective community/school processes;
- the ministry of education needs to plan for at least five years at a time, emphasizing long-term sustainability through strategic planning;
- political will is needed;
- it is not cost effective to focus curricular changes on just one health issue;
- careful monitoring and evaluation are very important;
- linkages between schools and health services are very important; and
- policies supportive of teachers must be in place.

To facilitate the creation of a school-based health program, communities and families first need to understand the importance of improving their children's health, and they need to be made aware that the problems can be solved with their help. Telling parents that their children are at risk means nothing if parents feel there is nothing they can do about it. Communication strategies can be utilized to inform parents of the immediate and long-term health and developmental risks to their children. Child health education efforts can be accompanied by education for parents. Children themselves can be valuable disseminators of information. The child-to-child or child-to-parent approach can be an effective means of making hard-to-reach populations aware of health and nutrition issues. As children are taught good health and hygiene habits, they can be

[31] Jones, in USAID/Bureau for Africa, 1996.
[32] UNICEF, Fourth Technical Support Group Meeting, 1995.

encouraged to pass these lessons on to parents, siblings, and other children who may not be able to attend school. Forming linkages with community groups and local organizations and soliciting in-kind assistance can be another way to reach parents.

Despite the hardships people in many developing countries face daily, parents and young children may not feel vulnerable to disease and sickness—they may even believe that tragedies only afflict the neighboring village. With this in mind, examples of the benefits of simple, preventive health care and health education taken from a nearby village should be showcased when possible. Health–education challenges are likely to be similar from one village to another in the same geographic area. As health–education programs are implemented and lessons are learned from them, the village becomes a resource for training and information on practices that work. If villagers see what can be done in nearby villages, the risks and benefits are likely to become more real to them. Parent groups, parent–teacher meetings, and partnerships with community-based organizations present opportunities to communicate health messages and involve families and communities. Training of trainers is also an effective means of building local human capital. Donor and development agencies can be the initial advocates for health education, but when such organizations leave the country, those they leave behind will need to remain committed to children's health and education if programs are to survive. Including families and communities from the start of an activity and building a base of trained community leaders will increase the likelihood of sustainability.

The Partnership for Child Development[33] seconds many of these suggestions, but places greater emphasis on integrated interventions and organizational cooperation. Organizations and government agencies—from state to local levels—need to view children's needs from a variety of perspectives. A truly integrated approach includes both the health and education sectors, as well as the agriculture, mineral and water, environment, social, economic, and other sectors. The Partnership's suggestions are to:

- formulate a unified national school health and nutrition policy;
- ensure intersectoral coordination and cooperation;
- conduct a situation analysis so that interventions are appropriate and acceptable;
- target the most needy children in order to be more cost effective;
- rely on an integrated approach so that individual needs for food, micronutrient supplementation, and anthelminthics are met while at the same time addressing the wider community's needs for improved access to clean water and sanitation, school gardens, health services, and community-based nutrition and health services, etc.;
- involve the community members—particularly teachers, health workers, parents, and students—to give the program needed momentum and support; and
- clarify the roles of other sectors, such as the agriculture and the non-governmental sectors.

The following table summarizes key strategies discussed in this paper, the objectives of those strategies, possible outcomes, and some implementation issues.

[33] Del Rosso and Marek, 1996; Watson, 1996; USAID/Bureau for Africa, 1996; Partnership for Child Development, www.ceid.ox.ac.uk.

Summary of Strategies

Strategy	Objectives	Expected Outcomes	Considerations
Address the whole child in the context of health, education, and physical and social environments	• Sustained good health of children • Cooperation between health, education, and other government agencies to avoid duplication of initiatives • Programs that complement and build on each other	• National resources maximized by eliminating duplicative initiatives • An interorganizational team acting as a clearinghouse for health/education information • Greater communication and coordination of activities between all sectors of government	• Cultural differences between sectors • Conflicting sectoral priorities • Cross-sectoral training needs • Clear lines of communication between all agencies involved • Differing reporting requirements and budget structures
Ensure the participation of national, regional, and local level leaders	• Leadership at all levels • Shared accountability • Smooth coordination of activities	• Programs that address local priorities • Consolidation of duplicative programs and maximization of resources • A champion of health/education initiatives for each level	• Definition of roles at national, regional, and local levels • Definition of roles of the health and education sectors
Focus on long-term solutions instead of short-term cures	• Continuity and consistency of health/education priorities during changes in leadership	• A clear set of goals and objectives for children's health and education needs • Fiscal commitment that is sufficient, efficiently allocated and long-lasting	• Flexibility to meet changing needs and unexpected situations
Emphasize continuous monitoring and evaluation	• Greater accountability • Measured progress toward objectives	• Program leaders held accountable for poor performance • Inappropriate interventions reassessed and modified • Improved tracking of program dollars	• Clearly defined measures • Regular data collection • Accuracy of data • Mechanism for processing customer feedback
Ensure regular internal and external communication	• Facilitate coordination of activities • Build trust with local community • Build local community awareness of children's health problems, needs, and possible solutions	• Intra-organizational team acts as information resource group • A clear communication plan	• Inclusion of national, regional, and local officials
Involve parents and community members as integral participants for the continuing good health of children	• Build community support • Increase likelihood of sustainability • Establish community ownership and sense of responsibility • Build trust	• Community resources leveraged to their fullest potential • Partnerships with local NGOs, health centers, and other community organizations • Parents and community members learn and develop good health/hygiene habits to be modeled by their children • Parents and community members play primary role in identifying the needs of their children	• Conflicting priorities between program and community • Mechanisms for communicating information to the public • Cultural sensitivity • Involvement at every stage of program
Involve school-based resources throughout the process	• Establish feeling of ownership • Leverage the human resources available in schools • Establish trust	• Teachers become effective monitors of the health needs of students	• Teachers' time • Additional compensation for teachers • Technical training needs of teachers to provide health services • Involvement at every stage

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Summary

As more children survive early childhood and enter primary school, the school is a logical point of entry to address their health and nutrition needs. Service delivery through schools allows extensive coverage at low cost and has the potential for positive results, both in and out of the classroom. Children, families, and communities all benefit from health–education integration. Children can be treated for individual health–nutrition problems, but they can also act as messengers to carry home lessons learned about good health practices and nutrition so that parents and siblings benefit as well. If the community is informed about deficiencies in the learning place, such knowledge may motivate members to provide needed financial, material, and human resources or initiate their own projects outside of school.

Interagency collaboration on any project is bound to be difficult. Each agency has its own priorities and concerns and rarely looks beyond them. In addition, individual agencies are unaccustomed to viewing other agencies as partners. Competition for funding and support and cultural differences between institutions have kept health and education professionals from working in partnership.

The institutional barriers that plague collaborative initiatives, however, can be overcome if governments have the will and commitment to make school health a national priority. Policymakers must first understand the conditions in which children live. Accurate data and careful evaluation at the local level should inform long-term strategic plans and policies at the regional and national levels. Furthermore, strategic plans should be developed jointly by the education and health sectors. Funding must be sufficient as well as efficiently allocated to school health projects. Agencies should look beyond their traditional roles and provide the training and information necessary for health and education personnel at all levels to better understand the linkages between the two fields.

The need for integrated services is now recognized; however, studies that analyze institutional and organizational factors in collaboration are sadly lacking, as evidenced by the program examples included in this study. Of the twenty-three programs described in the following section, only a small number (Ghana, Tanzania, and Indonesia) provided significant details on the institutional constraints encountered or suggestions for overcoming them. There are—and have been—several programs that integrate health and education, but little is known about how the two sectors work together. In many cases there appears to be little or no cooperation within the same program. As the movement toward a more holistic approach to child development continues, collaboration between the health, education, and other sectors is a growing priority. As Young argues, "Child development cannot be broken up into separate domains. A child's learning capacity depends on an interactive process of health, nutrition, and child-giver interaction.... An adequate food supply is not enough to ensure a child's survival."[14]

[14] Young, 1995.

Interagency Collaboration For School-Based Health Services

Programs and Activities

The activities listed in this section were selected based on the following criteria:

- the program is currently in operation (some older programs were included if information on operations and organizations could provide lessons for new programs);
- the program involves the participation of more than one agency;
- the program is school-based or has a school-based component; and
- the program is targeted at school-age children, both in and out of school.

Though many of the programs have a mix of activities, only those activities pertaining to school-based health services were included in the program descriptions. The level of detail provided under each program varies, depending on the available information. Descriptions are generally taken directly from the documents in which they were found, and in some cases several documents pertaining to one program were combined.

Burkina Faso Fourth Education Project
Project Sponsor: The World Bank
Other Participating Organizations: Ministry of Health, Directorate of Studies and Planning (DEP), Ministry of Basic Education and Mass Literacy (MEBAM), Directorate of Family Health (DESA) (of MOH), Pedagogical Institute of Burkina (IPB) (of Ministry of Education), Directorate General of Primary Education (DGEP).
Dates: 1991–1997
Interventions: Vitamin A and iodine supplementation, anthelminthics

The program encompasses a number of activities, including teacher training, textbook components for health/nutrition education, construction of wells and sanitary facilities, and the provision of micronutrients and deworming treatments (provided to students in all schools at regular intervals).

The organizational structure includes an interministerial committee, chaired by the DEP and made up of DESA, DSF, and DGEP. The committee is responsible for planning procurement, storage, and distribution of vitamins and medicines as well as advising on the development of pedagogical materials. Regional Directorates of Primary Education distribute the supplements and deworming tablets to the school; within the schools, distribution is managed by teachers in collaboration with district level health authorities.

The role of the Ministry of Health is that of quality controller of the micronutrients. The DSF is responsible for monitoring progress in the various regions. Schools are also provided with school health kits. This component of the Fourth Education Project is carefully monitored to evaluate the effectiveness of the implementation process and to measure the effect of interventions on student performance and attendance.

Program Strengths: Clear roles of participating agencies and institutions; built-in evaluation component; integration of interventions; intersectoral participation.

Burkina Faso School Feeding Program
Project Sponsor: Catholic Relief Services
Other Participating Organizations: Ministry of Basic Education and Mass Literacy (MEBAM)
Dates: 1962–
Interventions: mid-day school meal during the school year

This program has been in existence for more than 35 years under the direction of Catholic Relief Services. In 1988, MEBAM took over major administrative responsibilities of the program. The overall goal of the program is to increase literacy rates in rural areas by improving school attendance; the goal for 1994-1996 was to maintain attendance rates or increase them to 90 percent on 85 percent of school days. The program also hopes to increase girls' enrollment.

An 1994 evaluation concluded that the school lunch program had not had a significant effect on enrollment. However, the presence of canteens was associated with more regular attendance, higher retention, and higher scores on the national 6th grade examinations.

Program Strengths: the program also called for strengthening training for school inspectors, headmasters, teachers, and parent association members

Teach English Prevent AIDS–Cameroon
Project Sponsor: Peace Corps/Cameroon
Other Participating Organizations: Ministry of National Education, Ministry of Public Health
Dates: 1992–
Interventions: AIDS/HIV education

This project began with the collaborative efforts of the Ministries of National Education and Public Health and Peace Corps, and it is now carried out in eight of Cameroon's ten provinces. The project provides AIDS/HIV education through the teaching of English to high school students. The teaching of English is an important part of the academic curricula and a government policy. Teach English Prevent AIDS is presently implemented in all of Cameroon's French-speaking provinces. Focus groups at a workshop were conducted with teachers from all the French speaking provinces to evaluate the materials used and to obtain the teachers' impressions about the information. The feedback was generally positive and teachers requested further technical information to help them better prepared to field questions in the classroom.

No information regarding the collaborative process was available.

Program Strengths: interministerial collaboration; participation of teachers in materials development; integration of subject into existing required course.

The Gambia
Project Sponsor: The World Bank, Government of the Gambia, UNICEF
Other Participating Organizations: Curriculum Development Unit and Research Center of the Ministry of Education, Ministry of Health, school teachers, NGOs
Dates: 1992-
Interventions: curriculum integration

In September 1993, The Gambia introduced a new curriculum which integrated health, environment, and population issues. The curriculum was targeted at upper primary and middle school grades, and they take a student-centered approach to learning. Lessons do not include lectures, but are structured to allow students reflection and problem-solving through discussion. The curriculum design phase involved interministerial participation as well as the participation of primary and secondary school teachers and members of the NGO community. All new materials are pilot tested before being implemented country-wide.

After conducting a baseline survey of a large group of community members, parents, and students in 1992, a Population and Family Life Education program was introduced into government secondary schools. The new curriculum emphasizes health and environment through lessons in science and social and environmental studies texts. Additionally, as part of the science curriculum, teachers coordinate the development of school gardens and farms, successfully integrating health, environmental education, agricultural science, and community development into the project. Teachers are trained at Gambia College with the assistance of UNICEF technical experts.

Factors that promoted curriculum change include: 1) the establishment of teacher resource centers in 5 of the regional headquarters; 2) the participation of teachers and other community members in making curriculum content decisions; 3) the use of a consultative process for major policy decisions to ensure broad-based support; and 4) averting parental and religious resistance but making sure that technical voices were heard.

Factors hindering change include: 1) poor working conditions, especially for primary school teachers; 2) low salaries; 3) scarcity of quality housing, particularly in remote areas; 4) high attrition among teachers mitigating the effects of training efforts; and 5) centralized training.

Ghana School Health Education Program (SHEP), Partnership for Child Development
Project Sponsor: Rockefeller Foundation, Edna McConnell Clark Foundation, James S. McDonnell Foundation, UNDP, WHO
Other Participating Organizations: Ministry of Education, Ministry of Health, Ghana Education Services, Partnership for Child Development
Dates: 1992–
Interventions: Deworming, iodine and iron supplementation, urinary schistosomiasis treatment

In Ghana, the health sector serves just 20 percent of the country's schools.[35] As a consequence, policy has shifted the focus of the organization of child health service delivery from the health to the education sector. The mobile health units and the few clinics scattered throughout the countryside cannot reach all the children in need of medical intervention.

Until 1988 health had been the sole responsibility of the MOH. In 1989, the ministry of education was utilized to help implement an anthelminthic program in Ghana's schools. The school-based approach was further expanded in 1990 to include a program of chemotherapy. Some policy issues these developments raised were: 1) deciding the roles of the various players (parents, school system, education, other sector) in the provision of services; 2) deciding on the package of interventions (health services, provision of water and sanitation, basic health education and health promotion, and provision of nutritional supplements that would be delivered based on the health status and needs of schoolchildren; and 3) deciding who would bear the cost for these programs. In an effort to answer these questions the Partnership was initiated.

The Ghana Partnership for Child Development began in 1992 with the goal of improving the health and nutritional status of school-age children through school-based interventions. The Ministries of Health and Education and the Ghana Education Services (GES) (the body responsible for implementing the current National School Health Education Programme) collaborated on the project. The pre-existing interagency National Committee for School Health serves as the policy focus, while a range of government technical institutions, academic institutions, and NGOs provide technical support for monitoring and evaluation.

The Core Program is active in three districts of the Volta Region and serves 85,000 children. A regional coordinating council mirrors the interagency composition of the central policy group, the National Committee for School Health. Didactic health education materials have been developed, and teachers have been trained in their use. The drug delivery and reporting systems have also been designed and piloted, and a survey of health problems of the region was performed to determine the prevalence of particular diseases in particular schools so that mass treatment methods could be targeted for schools with high infection rates. Data was gathered on health, parasitic infections, nutritional status, and current KAP.

Cognitive psychologists were trained in Jamaica with a Cognition Panel, formed with the assistance of the Partnership, so that they could become familiar with materials that have already been developed and adapt them for use in Ghana. Additionally, a study was conducted to evaluate the social, economic, and cultural factors influencing school enrollment and attendance by females and to assess the health of children in and out of schoo .

The overall goal of the program was to examine how the use of school-based health services could be strengthened in order to improve the health and education of children. The specific objectives of the Partnership were:

[35] Adjei, presentation materials, 1996.

- to determine the effect of a package of interventions on indicators such as school performance, nutritional status, growth development, morbidity, KAP of schoolchildren, and the community;
- to determine operational issues such as: problems in implementation; collaboration between the Health and Education Sectors; and the cost of operationalization; and
- to make recommendations for expanding the program to the rest of the country.

The program involved health and education employees at national, regional, and district levels.

Adjei's report on the Ghana school-based programs made five key findings:

- Program coordination: regular meetings were useful; intersectoral action was more difficult at the national level due to the multiplicity of units involved;
- Participation of the education sector: teachers administered drugs and compiled data efficiently; teachers' limited knowledge of health issues constrained their provision of health education;
- The importance of making health an education issue;
- The necessity of commitment at all levels; and
- The effect of interventions has so far been positive on health and education indicators: 1) The proportion of stunted children dropped from 50 to 42 percent between 1994 to 1996 in the intervention areas; 2) the proportion of children with anemia increased from 49 to 50 percent between 1994-1996 in the intervention area, while in the comparison area, the proportion of anemic children rose from 26 to 58 percent; and 3) school performance indicators also showed improvement, but to a lesser extent.[36]

The report concluded that:

- Teachers were key to providing services to the largest number of children possible, but they needed training to provide health education and to deal with side effects of drugs given to children. The school, however, could still be the central coordinator of service provision for school-age children. The report recommended that teachers already working be trained in the same manner as community health workers. A school health textbook for each grade was also recommended.
- These requirements mean that the budgetary commitment must be strengthened. Functions of each sector must also be clearly spelled out to reduce the amount of time and level of complexity that can be involved in intersectoral collaboration; and
- In the area of policy there are constraints at the national level resulting from uncertainty about the roles of the various sectors. Also, it is not clear what sort of drugs the education sector is willing to have teachers handle. Policy also needs to be formulated on the role of parents in improving the health of their children. Additionally, the content of health education for various age groups needs to be decided, particularly for sensitive subjects.

The major constraints to effective program operation were identified as:

[36] Adjei, presentation materials, 1996.

- the lack of financial resources to support the work of the School Health Program, and a general lack of human and material resources;
- an ineffective monitoring and screening of a large percentage of schoolchildren due to lack of transport for program coordinators;
- no monitoring visits due to financial constraints; and
- the lack of training for Program staff on the management aspects of school health programs.[37]

Program strengths: integration of different types of interventions; involvement of MOH and MOE, and other government agencies; comprehensive approach; training of teachers and health workers; learning from other projects; and sensitivity to cultural factors.

Guatemala PRODEIN Project
Project Sponsor: UNDP/Partnership for Child Development Programme
Other Participating Organizations: INMED
Dates: undated
Interventions: deworming, health education, child-to-child

The Guatemala PRODEIN (*Proyecto de Desparasitacion Infantil y Educacion No Formal en Salud*) was implemented in an area on Guatemala's south coast and covers 21,900 students in 71 schools. The core interventions include: treatment for intestinal parasites twice yearly; participatory education techniques for school teachers; promotion of the child as an agent of change through technical proficiency lessons in six hygiene content areas; and parent training. The PRODEIN model demonstrates several pertinent lessons for low-cost, core, nutrition-intervention programs for school-age children. These are the need for affordability, sustainability, synergistic components, mobilization of public resources, intersectoral collaboration, and values. The modular delivery system lends itself to two programming opportunities: piggybacking of other interventions and inclusion of absentee, non-enrolled and preschoolchildren through the school network.[38]

Program Strengths: teacher and parent training; involvement of the child as a change agent.

Guinea Equity and School Improvement Program
Project Sponsor: The World Bank
Other Participating Organizations: Ministry of Pre-University Education and Vocational Training
Dates: 1995-2000
Interventions: iron and iodine supplementation, deworming

Prior to the introduction of interventions, a survey of the Guinean school-age populations was conducted. The survey revealed high levels of parasite infection. Based on this information, it was decided that investments in teacher training and textbooks would be accompanied by

[37] Boakye, in UNICEF, 1995.
[38] Watson, 1996.

activities to improve the health and nutritional status of schoolchildren. Deworming treatments are scheduled once a year and are meant to control rather than eradicate infections. Iron supplements will be given once a week during the school year. The drugs are delivered to the Central Pharmacy, which then distributes them to local health centers. Responsibility for pick-up is shared by the school and the parents' associations. A drug tracking system will be established by the school health department.

This project includes a health component entitled "Student Capacity to Learn," which is targeted primarily at girls, but does not exclude boys.[19] WHO provides technical advice, and UNICEF provides in-country assistance on the project. A pilot study has already been conducted to determine the health interventions appropriate for each school. In addition, they are looking for measurements and/or proxies of student learning. A baseline study of parasite infection in students in all regions has been conducted, and the first round of intervention has occurred in one region: students received micronutrient supplements and deworming tablets in combination.

Program Strengths: integration of interventions; situation analysis conducted; baseline data on parasitic infection conducted; parental participation; using existing health infrastructure for delivery; targeting the high risk group, i.e., girls.

The Indonesian Partnership for Child Development

Project Sponsor: Partnership for Child Development and affiliated agencies
Other Participating Organizations: Ministry of Education, Ministry of Health, Ministry of Religious Affairs, Ministry of Internal Affairs (Representatives from these agencies form the school health coordinating team)
Dates: undated
Interventions: health education, deworming, iron supplementation, environmental sanitation and water supply

This partnership is an integrated effort to develop and maintain healthy living behavior of schoolchildren. The intersectoral collaboration occurs at central, provincial, regency, subdistrict, and school levels, and the program is implemented with the close participation of the community. There are three main activities under the program: 1) health education—in the classroom and through extra-curricular activities; 2) health services—in the home through self care, through schools, and through screening programs for new entrants; deworming and iron supplementation; a nutrition program; a program against epidemic diseases; environmental sanitation; latrine and safe water supply; dental services; mental health; immunization; training cadre and referral system; and 3) Environmental Sanitation—latrine construction and water supply in schools.

The program serves the Central Java region. The Partnership is multisectoral but falls under the umbrella of School Health Activities at both the national and provincial levels. At the national level the School Health Activities project involves the Ministry of Education, the Ministry of

[19] Christopherson, 1996.

Health, the Ministry of Religious Affairs and the Ministry of Home Affairs. Participation of the various sectors is mirrored at the provincial level with coordination being handled by the Provincial Health Office and University of Diponegoro. A health survey of 1500 students has been performed. Multilevel, multisectoral collaboration is considered a critical element of the Indonesian Partnership program.

Program Strengths: multisectoral collaboration at all levels; integrated approach; use of pre-existing structure; community participation.

Jamaica Family Planning (1966-1979) and Jamaica Population and Family Planning Services II (1991-1998)

Project Sponsor: USAID and Jamaica National Family Planning Board
Other Participating Organizations: Ministry of Education, Ministry of Health Bureau of Health Education, Jamaica Family Planning Association, Women's Center in Kingston, University of the West Indies, IBRD, IPPF, UNFPA-ILO, the Association for Voluntary Surgical Contraception
Dates: 1966-1979 and 1991-1998
Interventions: family life/sex education

The Family Planning program started in 1966 with the goal of reducing the population growth of Jamaica to zero by the year 2000 by assisting and strengthening government, academic, and private agencies involved in family planning. The school-based components of the program involved family life/sex education courses prepared for primary, secondary, and college level students. Additionally, training in family life/sex education was provided for 2000 primary and secondary teachers and 1,500 teacher trainees.

In the current project, the school-based component involves assisting the Ministry of Education's Family Life Education program by providing new texts and teaching materials for primary and secondary schools, as well as teachers' colleges.

Program Strengths: training for teachers at all levels of education

HIV/AIDS Curriculum–Malawi

Project Sponsor: UNICEF, WHO, USAID
Other Participating Organizations: Ministries of Health, Education, and Community Services, other government bodies, National AIDS Control Committee
Dates: 1980–
Interventions: AIDS education and prevention program

In 1989, Malawi's National AIDS Control Committee called for the introduction of a school-based AIDS education and prevention program. The initiative involved interministerial cooperation, as well as the participation of other government bodies and donor agencies. The initiative began with a workshop to review existing AIDS education materials from other

countries. Workshops were held to draft teachers' guides and help educators conduct focus group research with students, parents, and teachers. Materials were produced and distributed to teachers, who received training in their use. The materials are not being used, however, due to a conflict between the jurisdictions of the Ministries of Health and Education. One strength of the Malawi AIDS program is that, unlike other countries, Malawi has included AIDS curricula in national examinations, which is an indication of the government's commitment to the program.

Program Strengths: interministerial cooperation; family and community participation; learning from other countries' experiences; training for teachers; commitment at the national level.

HEALTHCOM in Nigeria
Project Sponsor: USAID
Other Participating Organizations: UNICEF, Primary School Management Board, Ministry of Health (MOH) Health Education Unit (HEU), Local Government Administrations (LGA)
Dates: May 1987–September 1990
Interventions: health promotion through communication, water supply, teacher training.

The initial objective of HEALTHCOM was to improve health education in the state and assist the HEU in promoting immunization and oral rehydration therapy. The program sought to improve the health education performance of health care workers and to change the behavior of mothers in the care of young children.

As a result of the project, the MOH gave higher priority to health education, as evidenced by a line item in the budget for health education and the MOH's development of health education communications for media broadcast. The project helped establish a pattern of close collaboration between health educators in the HEU and media personnel.

In 1989 a series of interventions in Rafi and Suleja LGAs were initiated, conducted jointly with the MOH, UNICEF, health officials from the two LGAs, and the Primary School Management Board. A number of school based activities resulted from the collaboration. Among them were: 1) the provision of potable water to schools; 2) workshops for teachers from five schools on screening and vaccination; 3) a baseline survey of health problems conducted by African Regional Health Education Centre (ARHEC); 4) the provision of materials to teachers for use in health education programs on personal hygiene; 5) the formation of school health clubs in each school to encourage pupils to speak to their parents about malaria and measles immunizations; and 6) teacher training in the use of media for health education.

Health Clubs: most schools established a school health club. In some schools the clubs met once a week, in others once a month. In several schools gardens were planted and members participated in cleanup activities. Some schools' clubs participated in cleanup operations in a nearby town. Club membership varied from 20 to 80 students. Students were given caps and tee-shirts when they joined. The evaluation noted that while pupils may be willing to participate in clubs if asked and given these items, it may be too much to ask of them to speak to their parents about measles and immunizations enough to have a measurable effect.

Treatment of Malaria: a school health referral form was developed and passed to headmasters at workshops. Unfortunately, the forms were used for a variety of minor illnesses, and many families incorrectly believed that the form meant treatment was free. This indicated that training had been insufficient, regular supervision was lacking, and the concepts to be communicated were too complex.

Though little information was provided on how the Primary School Management Board, the HEU officials, and UNICEF worked together, the evaluation recommended that planning include all those who will be participating so that a sense of ownership could be established. The Ministry of Education in Niger State itself would like the HEU staff involved in the planning as well as the implementation of the project.

A criticism of the program was that those in charge of health education had not had any training in health education, although they were health professionals.

Program Strengths: commitment at the national level; budgetary commitment to health education; integration of interventions; participatory approach; incentives for students (caps and tee-shirts).

Improving the Ability of Primary Schoolchildren to Learn Through Nutrition and Health Interventions–Nigeria
Project Sponsor: University of Nigeria and American Jewish World Service
Other Participating Organizations: Abetete Women's Association
Dates: 1994–1996
Interventions: deworming, vitamin A and iodine supplementation, school snack, and health education

This program in Nigeria was implemented in three schools of the Anambra State. After a nutritional, parasitological, and clinical examination in 1994, children were provided treatments for a variety of parasitic worms. Students also received vitamin A and iodine supplements. The school snack program was introduced after the clinical examinations and deworming had begun. Children were provided snacks daily, but the number of children receiving snacks depended on the number of pupils who were allowed to stay in school because they had paid their school fees. This, of course, meant that children who had not paid the fee were unable to receive the treatment and snacks. The school snack program was, however, successful in increasing attendance, in spite of the school fees. Retention also improved as a result of the snack program, and there was a correlation between the snack intervention and improvements in exam scores. The focus in schools on child health also seems to have led to other unplanned health-related activities, such as renovation of the school building by the Parents' Association and a search for alternative water supplies. The feeding program had a positive effect on girls' attendance and enrollment.

Program Strengths: assessment of health and nutritional status of children before administration of interventions; integration of interventions; motivation for other activities to improve the school environment.

Narcotics Education–Peru
Project Sponsor: USAID
Other Participating Organizations: Center for Education and Information on Drug Abuse (CEDRO), Street Children Program, Ministry of Education, National Institute for Family Welfare
Dates: 1992–1996
Interventions: drug-related curricula

This project aimed to strengthen the CEDRO as Peru's leading drug information and education center, expand the implementation of drug-related curricula in Peru's secondary schools, develop community drug prevention programs in high risk areas, and consolidate the Street Children Program. The school-based component of this project involved the distribution of educational materials to schools and universities, among other places, and support for the expansion of the Ministry of Education's secondary school drug prevention program from 114 schools to 1,800 by 1997. Emphasis is placed on schools in and near coca-growing regions.

Program Strengths: targeting high risk areas; reaching children not enrolled in schools; supporting ongoing programs.

South African Primary School Nutrition Scheme
Project Sponsor: The World Bank
Other Participating Organizations: Department of Health, Department of Education, Reconstruction and Development Programme
Dates: undated
Interventions: deworming, micronutrient supplementation, supplemental feeding, nutrition education, environmental improvement

The Primary School Nutrition Program was one of the flagship initiatives of the Mandela government. It aimed to provide universal coverage and, at the time of the evaluation, was feeding 4.5 million students. The program encourages communities to become more involved in health issues at school, and it attempts to reduce wastage and inefficiency by targeting supplies to children who are most in need.

The principles applied in this project include: 1) community participation; 2) a holistic approach; 3) a multisectoral, multidisciplinary intervention; and 4) sustainability. Short-term activities include: basic food intervention, micronutrient supplementation, parasite eradication, and nutrition education. These initiatives will be linked to longer-term objectives through: 1) programs aimed at the socioeconomic upgrading of rural and periurban areas, e.g., access to drinking water and improved standards of sanitation, school and family gardens to ensure food

security, and the promotion of entrepreneurs at the local level; 2) a national education quality improvement program; 3) parent education programs; and 4) an improved school health service program.

The Department of Health will administer the program with comanagement at all levels with the Department of Education. The overall coordination rests with the Reconstruction and Development Programme. The initial proposal for the project recommended that a ministerial committee at the national and provincial levels be established to formulate broad policy. It also recommended that teachers and parents be involved in management and decision making at the local level.

The government is planning an evaluation of the program that will ask a number of questions, including: Does the program increase student attendance? Is there a difference between its attendance effect on boys and girls? Does the program improve cognitive function, active learning capacity, and classroom behaviors? Does it increase learning? Does school quality influence the pattern of program benefits? Does it influence dietary habits as well as other nutritionally related behaviors, attitudes, and knowledge? The evaluation will look at a range of variables such as participants' age, nutritional status, number of feeding days, composition and timing of feeding, and the level and nature of community participation.

Program Strengths: multisector involvement; holistic; integration of interventions; focus on at-risk areas; parent education and involvement.

Tanzania School Health Project
Project Sponsor: USAID
Other Participating Organizations: Ministry of Education, Ministry of Health, Ministry of Water, Minerals and Energy, Ministry of Agriculture
Dates: 1980–
Interventions: child-to-child health education, health services screening and basic care, school farms, school feeding, environmental improvements

In 1977, the Government of Tanzania requested assistance from USAID to extend the health care system to school-age children because the traditional health service system was not reaching most areas of rural Tanzania. Though the Maternal Child Health (MCH) program was in place, officials discovered that once children started school, the program no longer served them. The Ministries of Health and National Education and USAID/Tanzania designed the project, with the Ministry of Health as the implementor. The health sector was selected because of the technical knowledge required for most programs.

The Tanzania School Health Project began in 1980 with the purpose of initiating a comprehensive school health program emphasizing six primary components:

- Health education—instruction at the primary school and teachers' training college levels;

- Health services—health screening, simple diagnosis and treatment, first aid treatment, basic self-care and child-to-child methods; the screenings were conducted by the 8000 teachers of the 800 schools of the Central Zone, and an existing curriculum used to train local health workers was modified for the teachers. Village health workers then trained the teachers using the new curriculum;
- Nutrition—improved output from school farms, crop storage, and use for school feeding programs. Problems associated with this component included lack of cooking and eating facilities, lack of people to prepare the food, time required to prepare the meals, and lack of facilities and water for cleaning utensils. Additionally, the school gardens could only produce enough to feed the children for a few months.
- Environmental health—school latrine and water supply construction: problems impeding this component were lack of funds, unavailability and high cost of materials, lack of geohydrological information, poor road conditions, and the lack of personnel, equipment, vehicles, and fuel.
- Institution of a student health record system—a school health card was instituted and data was collected on a child's weight, immunization status, high risk status, self or sibling attendance record, illness record, and other items. Data were compiled from the individual level to the aggregate level.
- Training of personnel in health, education, and management skills—training covered all levels of personnel involved, from the ministerial to the school level.

The two primary country agencies involved were the Ministries of Health and Education. The pilot phase covered 80 schools with a total of 30,000 students. The project was implemented by 160 teachers with the help of 8 district health officers. From its inception the School Health Program was organized to encourage interministerial inputs and cooperative arrangements with ministries such Water, Minerals, and Energy. Still, as the evaluation noted, "It is increasingly apparent that the management and implementation of the program at all levels—national, regional, district, and local—need to be shared with professional staff in the Ministry of Education," since the project directly affects the country's primary schools.

Constraints associated with the program:

- *Defining roles.* A lack of clarity of roles and responsibilities of central office staff, expatriate technical advisers and regional and district medical and education officers. John Snow, Inc. was given the roles of technical advisers as well as administrators (complete control of expenditures).
- *Conflicting structures and procedures.* The project's structure and operating procedures often conflicted with established government programs, creating confusion and bad feelings.
- The absence of the MOH program director at the start of the program created an administrative vacuum, resulting in lack of continuity and difficulty in maintaining progress
- *Communication.* There was a lack of direct communication, especially at the central office level between the MOH program director, the John Snow, Inc. Chief of Party, and USAID project monitors. This led to misunderstandings and subsequent delays in implementation.
- *Government reporting requirements.* Tanzanian government reporting requirements were very different in format from USAID reporting requirements. The MOH Planning Unit

complained that they were not receiving the quarterly financial reports, though they had not designated anyone to receive the reports. As a result, reports which had been sent in by the contractor were frequently lost by the MOH.

Program Strengths: training at all levels and across sectors; high level of participation from other projects and sectors; community involvement was unusually high; Tanzanian receptivity to programs promoting self-reliance; the government's policy on implementation and adherence to the self-reliance philosophy, which is supported by village mechanisms to enforce participation.

The Tanzania Partnership for Child Development

Project Sponsor: Rockefeller Foundation, Edna McConnell Clark Foundation, James S. McDonnell Foundation, UNDP, WHO

Other Participating Organizations: Ministries of Health and Education, the Ministry of Culture, the Ministry of Local Government, the Ministry of Community Development, Women Affairs and Children

Dates: 1993–

Interventions: Deworming, iodine supplementation, iron supplementation, urinary schistosomiasis treatment

The Tanzanian government established a Partnership program called *Ushirikiano Wa Kumwendeleza Mtoto Tanzania* (UKUMTA) in February 1993. The partnership includes the Ministries of Health and Education, the Ministry of Culture, the Ministry of Local Government, the Ministry of Community Development, Women Affairs and Children. The Partnership uses the preexisting interagency National Committee for School Health as the national focus for policy, and an equivalent Regional Committee in the Tanga Region serves as local coordinating and implementing body. A survey of nutritional status and parasitic infections was conducted in the region in 1994 to assess the interventions required.

Training in methods to evaluate the effect of health education was conducted jointly with WHO/TDR, participants from Colombia, Ghana, and elsewhere in Africa. The Nutrition and Growth Panel has been charged with the task of examining the health and nutrition of absentee and non-enrolled children. To aid data collection, a computerized data collection and analysis system has been installed. The Partnership's research activities are complemented by initiatives to build the capacity of schools of public health in Ghana and Tanzania to conduct this kind of research. This component of the project is being carried out by the Harvard Center for Population and Development Studies.

Program Strengths: involvement of MOH and MOE and other government agencies; use of preexisting structures; data collected to target interventions; cooperation with other country program representatives; installation of information system for easier data collection and analysis

Uganda School Health Education Project
Project Sponsor: Comic Relief, AMREF, Redd Barna, UNICEF
Other Participating Organizations: Institute of Education, Kyambogo, Ministry of Health, Ministry of Agriculture, Ministry of Local Government, WHO
Dates: 1988–
Interventions: child-to-child health education

The child-to-child program in Uganda covers about 200 schools in 10 districts, and includes a teacher education component and extracurricular activities for the children. At the national level it is guided by an interministerial panel comprising representatives of the Ministries of Agriculture, Health, and Local Government, AMREF, Red Cross, WHO and UNICEF. Implementation responsibility cascades to the zonal level and to school health committees. Health topics covered in the syllabus include immunizable childhood diseases, AIDS, and personal hygiene. The approach encourages children to deliver health messages outside the school and participate in health related activities with their families and others in the community.

Program Strengths: training of teachers; participatory in approach; interagency and intersectoral participation at the national level; participation at the national, zonal and local level.

The Government of Uganda and UNICEF Country Programme: The Basic Education, Child Care and Adolescent Development Programme (BECCAD)
Project Sponsor: UNICEF
Other Participating Organizations: multi-sectoral, Uganda AIDS Commission, AIDS control programs in line ministries, NGOs, and communities
Dates: 1990–
Interventions: AIDS education, life family life/sex education

Instead of focusing exclusively on AIDS, BECCAD takes a broader view of adolescent and youth problems. It is a comprehensive program that integrates early childhood care and development and primary education, and focuses on adolescents to address the influences of family and community on child and adolescent development. The program is implemented at the community, service delivery, district, and national levels. The project focuses on life skills development in reproductive health, safer sex practices and decision-making skills; shifting attitudes and opinions toward a healthy lifestyle; and guaranteeing a safe and secure public space for this to occur. It also includes a component for out-of-schoolchildren.

Program Strengths: multi-sectoral; involvement at several levels; targeting out-of-schoolchildren.

Zaire: CEPLANUT Food/Nutrition and Agriculture Education Project
Project Sponsor: USAID
Other Participating Organizations: Centre National de Planification de Nutrition Humaine
Dates: 1982–
Interventions: Primary school curriculum, training manuals

This project's target group was schoolchildren in grades 1-6. A curriculum developed by the Centre Nationale de Planification de Nutrition Humaine (CEPLANUT), based in Kikwit was pilot tested in four representative rural schools, and it was intended that the program would be expanded to the subregional level. The curriculum contained 300 lessons in agriculture and 300 lessons in nutrition and health and used a participatory approach.

The project developed a primary school curriculum, flip charts, nurse's training manual, and growth monitoring model. Due to factors such as inflation, the charts and training manual were not printed. The curriculum materials covered agriculture issues including food production, food processing, storage methods, and food consumption. The manual for nurses covered nutrition education, growth monitoring, nutrition assessment, dietary counseling, and dietary management of diarrheal disease. The nutrition education component was eventually scaled down.

No meaningful reference regarding the participation of the health sector was made in the evaluation, but "intersectoral integration of nutrition objectives into projects across sectors" was recommended. At the time, nutrition education was generally in the form of a small add-on component to something else. The success in producing a nutrition textbook was attributed to the collaboration between the health and education sectors, CEPLANUT, and USAID.

Program Strength: participatory approach

The Adolescent and AIDS Prevention Project–Zimbabwe
Project Sponsor: ICRW, Ford Foundation
Other Participating Organizations: University of Zimbabwe Department of Community Medicine
Dates: 1992–
Interventions: HIV/AIDS education

This project began in 1992 with funding from ICRW. It was initially designed to study female sexuality, but during the research phase it was found that adolescents needed a forum to discuss sexuality and HIV/AIDS, STDs, peer pressure, and relationships. It was decided to use the classroom for this purpose. Teacher training has begun and a manual to go with the training has been developed. Regular teacher support and training are reported to be the key to the success of this project so far.

The project has been working with the Ford Foundation's sister project for the last year. The Ford project has started youth AIDS clubs in schools using a newsletter and competitions as education tools.

Program Strength: regular teacher support and training; a setting in which students can openly discuss issues of sexuality and relationships

The Government of Zimbabwe and UNICEF Program of Cooperation: The AIDS Prevention Program

Program Sponsors: UNICEF, Ministry of Education

Other Participating Organizations: An array of ministries, the National AIDS Coordination Program, the Zimbabwe AIDS Network, selected NGOs and other groups, selected training institutions, the University of Zimbabwe, the Zimbabwe Broadcasting Corporation, municipalities and cities, heads of church denominations, and the Zimbabwe Council of Churches

Dates: 1992–

Interventions: AIDS/HIV education, communications campaign

The Zimbabwe–UNICEF AIDS Prevention Program began in 1992; systematic AIDS/HIV education began in January 1994. The program combines approaches such as service delivery, capacity building, and target group empowerment. The largest component of the program supports the introduction of AIDS education into all primary and secondary and tertiary-level schools in Zimbabwe by the Ministry of Education. A communications campaign reaches out-of-school youth. The school-based components of the program include textbooks developed for the program, a nationwide school newsletter, and the training of future teachers in AIDS education. Personnel from MOH and NGOs also participate in training.[40]

The success of programs of this nature and extent depends on the following:

- political commitment and government ownership;
- broad-based support;
- attention to management and logistical issues such as time-tables;
- creation of training capacities and support systems;
- action research and timely evaluation;
- adequate financial resources;
- significant involvement of key players and target groups;
- goodwill and awareness of the program;
- intersectoral collaboration; and
- transparency.[41]

The constraints of this program centered around teachers:

- getting teachers released during school time;
- unsupportive head teachers and teachers; and
- preoccupation with examination subjects, especially at the secondary level.

Program Strengths: including out-of-schoolchildren in target group; covers all levels of education; training of teachers.

[40] Gatawa, in UNICEF, 1995

[41] Gatawa, in UNICEF, 1995.

Programs Involving Multiple Countries

Nutrition Education and Social Marketing Field Support Project: Mali, Burkina Faso, Niger, Honduras
Project Sponsor: USAID
Other Participating Organizations: government ministries, NGOs, PVOs, international agencies
Dates: 1994–
Interventions: nutrition-oriented curricula

The goal of the Nutrition Communications Project was to "reduce the incidence and severity of malnutrition among children and mothers by fostering changes in behavior." One of the project goals called for the inclusion of nutrition-oriented curricula for schools of agriculture, primary schools, and teacher training centers.

The NCP collaborated with host country ministries, NGOs, PVOs, and international donors. For example, in Niger the project worked with the Ministry of Agriculture, while in Mali there was collaboration with PVOs and the Ministry of Health. The Ministry of Health was the major partner, and later the Ministry of Education, for the project in Burkina Faso. In Honduras, the Ministry of Health was also the primary partner. The in-school portion of the project was supported by the Ministry of Education and UNICEF. No information regarding how the various sectors worked together was detailed in this evaluation. The project was slated to end March 1995.

Current School-Based Nutrition and Health Services in World Bank Operations

The following is a list of the current World Bank programs in school-based nutrition and health services, as listed by Del Rosso and Marek.[42] The country project names are listed, followed by the years for funding and the program elements covered. No other detailed information on these programs was available.

- Angola First Education (1992–1997): health and nutrition education in curriculum
- Bangladesh Female Secondary School Assistance (1993–2000): hygiene education; water and sanitation for schools
- Bolivia Social Investment Fund (1993–1997): school meals for ages 3–12
- Brazil Innovations in Basic Education (1991–1998): school meals (management and training); health screening (vision and hearing); immunizations; preventive oral health; iron and vitamin A supplements via schools; evaluation of nutrition and health interventions
- Brazil Northeast Basic Education (1993–1999): evaluation of school lunch program
- Cape Verde Education and Training (1995–2000): operational research on school feeding and other school-based health and nutrition interventions
- Chile Primary Education Improvement (1991–1998): health and nutrition screening and referral; school health manual and teacher training; school feeding for pre-schoolchildren

[42] Del Rosso and Marek, 1996.

- Costa Rica Basic Education Rehabilitation (1991–1997): health education in curriculum; teacher training in health education
- Dominican Republic Primary Education (1991–1998): institutional capacity building in school-based nutrition and health services; school meals (expansion and targeting); deworming; social marketing-based health and nutrition education through schools; iron-fortified school breakfasts
- Dominican Republic Basic Education II (1996–2001): school nutrition and health services as under Basic Education I (school feeding, deworming, micronutrients, and capacity building)
- Ecuador Social Development I (1991–1999): research on nutrition, health, and education. The project is part of a social sector program incorporating a sequence of projects in rural development, education and training, health and nutrition, and social welfare. The urban basic education component finances textbooks and education materials, in-service teacher training, pre-school and special education.[43]
- El Salvador Basic Education Modernization (1996–2001): deworming; vitamin A and iodine supplementation; health screening and referral through schools; social marketing-based health education
- Lesotho Education Sector Development (1991–1997): impact evaluation of school gardens
- Madagascar Education Reinforcement (1990–1996): nutrition education in curriculum
- Maldives Second Education and Training (1995–2000): training for school health staff
- Morocco Rural Basic Education (1991–1997): school canteen construction; school meals (subsidized); evaluation of school feeding
- Mozambique Education II (1990-1997): school rehabilitation; latrine construction; pilot deworming and iron supplementation; school feeding (expansion); institutional development for school health
- Niger Education III Secal (1994–2000): deworming; micronutrient supplementation; health and hygiene education; institutional development for school health
- Pakistan Sind Primary Education (1990–1998): school feeding (local foods via PTAs); evaluation of school feeding
- Peru Basic Health and Nutrition (1994–2000): deworming
- Soloman Islands Education and Training III (1993–1999): training for school nurses
- Zaire Education III (1991–1996): teacher training in health, nutrition and hygiene; non-formal education for parents
- Zambia Education Rehabilitation (1992–1998): health and hygiene education; study on cholera and environmental health in schools

[43] Additional information from Chistopherson 1996.

Bibliography for Programs and Activities

Adjei, Sam. *The Ghana Experience with School Based Health Services*, (presentation), Health Research Unit, Ministry of Health, Ghana.

Adjei, Sam. School-Based Global Perspective. The Task Force for Child Survival and Development. *Proceedings from Achieving Health: New Perspectives on Integrated Services and Their Contributions to Mid-Decade Goals. February 2-4, 1994, New Delhi, India.*

Alrutz, Neen and Mendo, C., (1987). *Final Evaluation of Zaire Area Nutrition Improvement Project* (600-0079). Kinshasa:USAID.

Christopherson, Kaaren, (Draft, 1996). *Education-health Linkages in Child Development: A Guide to Resources*. Washington, DC:USAID and Academy for Educational Development.

Del Rosso, Joy Miller and Marek, Tonia (Draft, 1996). *Class Action: Improving School Performance in the Developing World through Better Health and Nutrition.*

Education Development Center, (1996). *Nutrition/Health and Education Practice and Research: A Sourcebook for Presentations and Dialogue*, for Advancing Basic Education and Literacy Project and USAID. Newton, MA: EDC.

Faigenblum, Jacques and Tonon, Marilyn, (1982). *A Report on the Midterm Evaluation of the Tanzania School Health Project*, Project No. 621-0150, USAID Contract No. AID/AFR-C-1648. Washington, DC:USAID.

Moser, Thomas A., and Stanton-Rosario, Jacquelyn, (1994). *Final Evaluation: Nutrition Education and Social Marketing Field Support Project* (936-5113), Contract No. PDC-5832-I-0095-00. Washington, DC: USAID and Creative Associates International, Inc.

Moulton, Jeanne, (1996). *Using Schools to Deliver Education and Services in Health and Nutrition in Sub-Saharan Africa: A Map of Informative Interventions*. USAID/AFR/SD.

Myers, Christine, (1985). *Zaire: CEPLANUT food/nutrition and agriculture education project evaluation*. International Nutrition Communication Service: Consultant Report Series. Newton, MA: EDC.

Seifert, Kim, (1996). *Phase I Report: HIV/AIDS Education Programs for Youth in Sub-Saharan Africa*. Prepared for ABEL II/USAID. Creative Associates International, Inc.

USAID/Bureau for Africa, Office of Sustainable Development, *Collaborative Programs in Primary Education, Health, and Nutrition: Report on the Proceedings, May 7-8, 1996.*

Watson, Fiona, (1996). *Review of School-Based Health and Nutrition Interventions*. Oxford, UK: Partnership for Child Development.

Yoder, Stanley P. and Oke, Adewale, (1991). *HEALTHCOM in Nigeria: Final Case Study Evaluation Report*, #DPE-1081-C-00-5063-00. Washington, DC:AED/USAID.

Bibliography

Adjei, Sam. *The Ghana Experience with School Based Health Services*, (presentation), Health Research Unit, Ministry of Health, Ghana.

Adjei, Sam. School-Based Global Perspective. The Task Force for Child Survival and Development. *Proceedings from Achieving Health: New Perspectives on Integrated Services and Their Contributions to Mid-Decade Goals. February 2-4, 1994, New Delhi, India.*

Agarwal, Seema, (1994). *Caring to Learn–Learning to Care: Children's Responsibility in Providing Care, Case Evidence from Ghana.* CHILDSCOPE/UNICEF. Paper presented at UNICEF-Cornell Colloquium on Nutrition and Care, Ithaca, NY, USA, 12-15 October, 1994.

Berhman, Jere R. and Lavy, Victor, (1994). *Children's Health and Achievement in School*, LSMS Working Paper Number 104. Washington, DC: The World Bank.

Brindis, Claire and Chang, Hedy, (1994). *School-Based Health Centers, School-Linked Integrated Service Models and Family Resource Centers: Promising Approaches to Improving Outcomes for Children, Youth and Families*. Unpublished document. World Bank.

Carson, David K., and Greeley, S., (1988). Not by Bread Alone: Reversing the Effects of Childhood Malnutrition, *Early Child Development and Care*, vol. 30, pp. 117-131.

Colletta, Nat J.; Balachander, Jayshree; and Liang, Xiaoyan, (1996). *The Condition of Young Children in Sub-Saharan Africa: The Convergence of Health, Nutrition, and Early Education*, World Bank Technical Paper No. 326. Washington, DC: The World Bank.

Del Rosso, Joy Miller and Marek, Tonia (Draft, 1996). *Class Action: Improving School Performance in the Developing World through Better Health and Nutrition.*

Development Fund for Africa (1989). *The Impact of Child Survival Activities in Africa: A Report on AID's Progress in Reducing Infant and Child Mortality in 17 Child Survival Priority Countries*. USAID/Bureau for Africa.

Dolan, Carl, (1992). *Health/Education Collaboration*, National Health/Education Consortium #5. Washington, DC: National Education/Consortium. Sponsored by the Prudential Foundation.

The Future of Children, *School-Linked Services*, 2(1), Spring 1992.

Glewwe, Paul and Jacoby, H., (1993). *Delayed Primary School Enrollment and Childhood Malnutrition in Ghana: An Economic Analysis*, LSMS Working Paper Number 98. Washington, DC: The World Bank.

Husein, M.H.; Talaat, M.; El-Sayed, M.K.; El-Badawi, A.; and Evans, D.B., (undated). *Who Misses Out With School-Based Health Programmes? A Study of Schistosomiasis Control in Egypt.*

Lawrence, Robert S. Ghana's Experience with School-Based Health Services. *The Task Force for Child Survival and Development. Proceedings from Achieving Health: New Perspectives on Integrated Services and Their Contributions to Mid-Decade Goals. February 2-4, 1994, New Delhi, India.*

Levinger, Beryl, (1989). *Malnutrition, School Feeding, and Educational Performance*. Paris: UNESCO.

Levinger, Beryl, (1994). *Nutrition, Health and Education for All*. Newton, MA: EDC and New York, NY: UNDP.

Levine, Robert A., (1980). Influences of Women's Schooling on Maternal Behaviors in the Third World. *Comparative Education Review*, June 1980, (pp. S78-S105).

M[illegible]rs, Robert G., (1993). *Toward a Fair Start for Children: Programming for Early Childhood Care and Development in the Developing World*. Paris: UNESCO.

Moulton, Jeanne, (1996). *Using Schools to Deliver Education and Services in Health and Nutrition in Sub-Saharan Africa: A Map of Informative Interventions*. USAID/AFR/SD.

Negussie, Birgit; (1990). *Maternity Care and Childrearing Preconditions for Educational Achievement: Experiences in a cross-cultural perspective with special focus on East Africa, Third International Conference for Maternity Nurse Researchers, June 19-21, 1990*. Gothenburg, Sweden: Nordic School of Public Health.

Novella, Antonia C.; DeGraw, C.; and Kleinman, Dushanka K., (1992). Health Children Ready to Learn: an essential collaboration between health and education, *Public Health Reports*, Jan-Feb. 1992, vol. 107, no. 1, (pp. 3-10).

Nkinyangi, John A., and Van der Vynckt, (1995). *Child Health, Nutrition and Educational Participation*, A Technical Support Services (TSS-I) Report for the Government of Kenya. UNESCO.

Partnership for Child Development, http://www.ceid.ox.ac.uk

Perry, Cheryl L., (undated). A Conceptual Approach to School-Based Health Promotion. *School Health Research.*

Pollitt, Ernesto, (1984). *Nutrition and Educational Achievement*, Nutrition Education Series, Issue 9. Paris: UNESCO.

Sigman, M.; Neumann, Charlotte; Jansen, Ake A.J.; and Bwibo, Nimrod; (1989). Cognitive Abilities of Kenyan Children in Relation to Nutrition, Family Characteristics, and Education. *Child Development*, vol. 60, (pp. 1463-1474).

Subbarao, K. and Raney, Laura, (1993). *Social Gains from Female Education: A Cross-National Study*, World Bank Discussion Papers 194. ERIC Doc. ED363542. Washington, DC: The World Bank.

UNESCO, Division of Science, Technical and Environmental Education, (1989). *First Technical Report of the New UNESCO Project to Improve Primary School Performance through Improved Nutrition and Health*, Nutrition Education Series Issue 18. Paris: UNESCO.

UNICEF, (1986). *Education for Child Survival and Development in Africa*, Digest 20. Entire volume. Paris: UNICEF.

UNICEF Consultative Group on Early Childhood Care and Development, UNICEF, Unit for Co-operation with UNICEF and WFP, (1991). *Preparing Children for Schools and Schools for Children*. New York, NY: UNICEF.

UNICEF, (1995). *School-Based Interventions for Youth Health and Development*, Report of the Fourth Technical Support Group Meeting, Yaounde, Cameroon, 27 February-3 March, 1995.

USAID/Bureau for Africa, Office of Sustainable Development, *Collaborative Programs in Primary Education, Health, and Nutrition: Report on the Proceedings, May 7-8, 1996.*

United States General Accounting Office, (1994). *Health Care: School-Based Center Can Expand Access for Children*. Washington, DC: GAO.

Van Heerden, J.R.; (1984). Early Under-Nutrition and Mental Performance, *International Journal of Early Childhood*, 16 (1), pp. 10-16.

Warren, Kenneth S., et al., (source unknown).

Watson, Fiona, (1996). *Review of School-Based Health and Nutrition Interventions*. Oxford, UK: Partnership for Child Development.

The World Bank, (1994). *Enriching Lives: Overcoming Vitamin and Mineral Malnutrition in Developing Countries*. Washington, DC: The World Bank.

Young, Mary Emig, (1996). *Early Child Development: Investing in the Future*, Directions in Development series. Washington, DC: The World Bank.

Young, Mary Emig, (1995). *Investing in Young Children*, World Bank Discussion Papers. Washington, DC: The World Bank.